Culture and Contracts: The Historical Legacy of Forced Labour

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Motivation

- Hutu-Tutsi divide has been one of the most contentious inter-group relationships in the postcolonial era
  - Despite same language / religion (Desmet et al, 2011)
  - Despite not being economic competitors (Jha, 2013)

- Prominent narrative: Belgian colonizers imposed arbitrary ethnic divisions that had not previously existed, favoured the Tutsi politically, sparking a rivalry
  - Suggests socio-political construction of ethnic rivalry that hasn't been systematically explored.

- Why understudied? difficult measurement challenge
  - Measurement of ethnic distrust in post-conflict / reconciliation region
  - Even measurement of ethnicity itself is not straightforward in this context

"The rigid dichotomy between Hutu and Tutsi was constructed by colonial authorities in collaboration with Rwandan elites and hardened as a result of political conflict." (Fearon, 2000)

Survey & lab data from 143 villages in Rwanda and Burundi

- Forced labour in the '30s is thought to have exacerbated ethnic rivalry
  - Under forced labour Tutsi chiefs mistreated (only) Hutu farmers
  - Do their grandchildren now use an ethnicity-heuristic for trust?
- Examine persistent effects of historical forced labour on ethnic preferences & contract outcomes
  - Study crop insurance, where we expect inter-ethnic agreements

(Some) related work

1. *Origins of Attitudes*
   - Nunn and Wantchekon (2011); Alesina, Giuliano and Nunn (2013); Voors et al. (2012); Guiso, Sapienza, Zingales (2014)
2. *Institutions and development*
   - Acemoglu, Johnson, Robinson (2001); Glaeser et al (2004); Sanchez de la Sierra (2014); Nunn (2008)
3. *Culture and economic outcomes*
   - Alesina and Giuliano (2013); Algan and Cahuc (2010); Knack and Keefer (1997)
4. *Forced Labour*
   - Dell (2010); Bobonis and Morrow (2013); Acemoglu and Wolitzky (2011); Chwe (1990); Lowes and Monterro (2019)

Historical background: before colonization

Not much precolonial evidence of Hutu/Tutsi conflict - but also - no written record

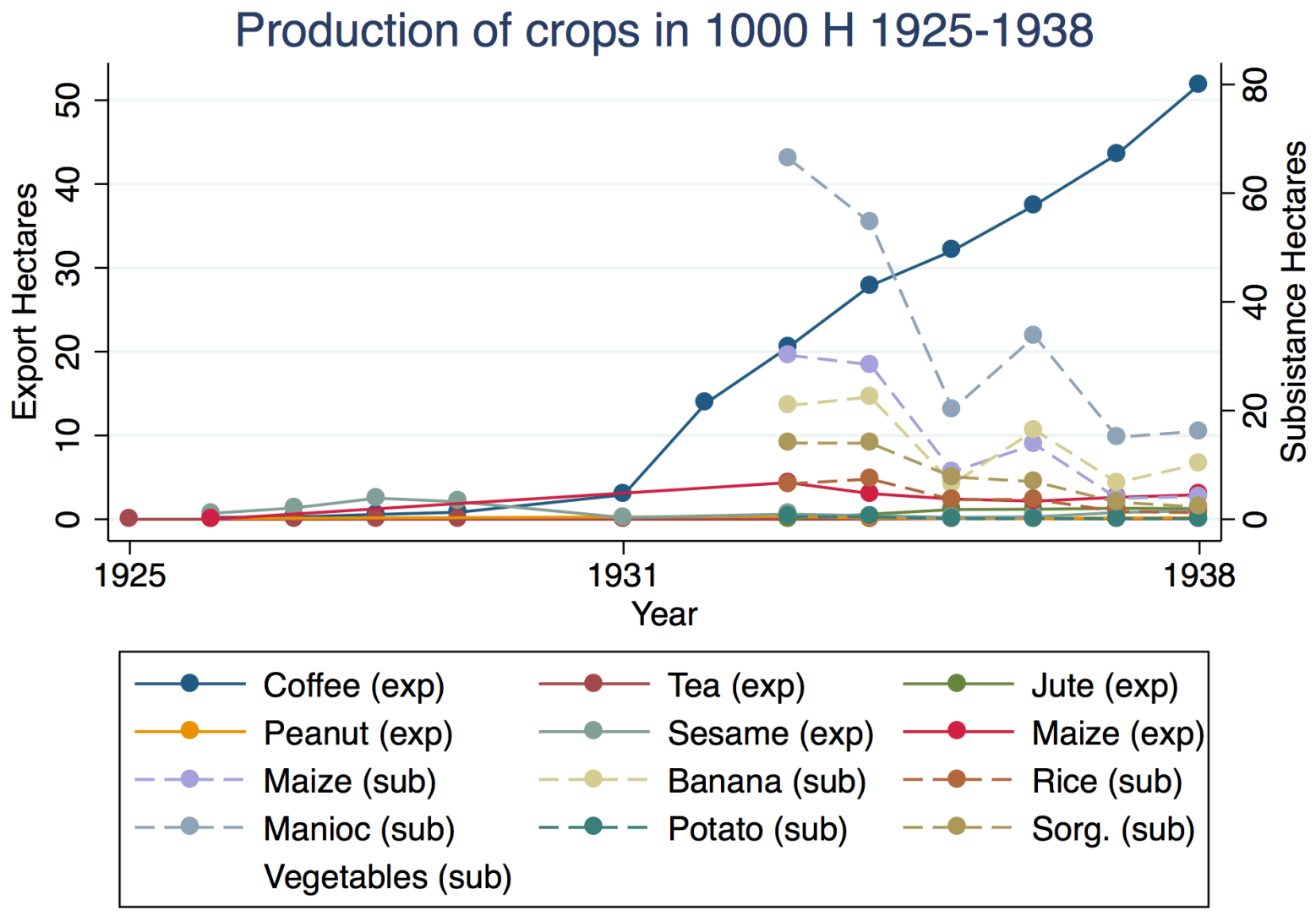
- Prominent lineages acted as government, offered protection of land rights, resolved disputes, etc.
- This service was offered in exchange for: (1) cattle; (2) taking care of cattle; (3) labour (called *Ubureetwa*)
  - Only Tutsi kept cattle so (1) & (2) common in Tutsi villages. (3) used in Hutu villages
- Transformed under king Rwabugiri (r. 1863-1895). The Tutsi king appointed Tutsi chiefs almost everywhere and made (3) mandatory for Hutu
  - 1st version of Hutu forced labour that we know of
  - This version existed throughout German colonization, until the Belgians took over

Historical background: Belgian colonization (post-WW1)

Belgium's main goal was modernization: abolishing traditional institutions & transitioning away from barter economy:

- Coffee was pushed to increase exports and ∴ taxes
- 1931: export quotas introduction, to be filled with forced labour
  - Coffee started to dominate industry.
  - Chiefs retained profit from trees, which was taxed by Belgians
  - Uniform quotas across all villages
  - Variation in coffee suitability meant quotas were binding for some and not others

"In 1927 colonial authorities in Rwanda began aggressively promoting coffee production. By 1931 they adopted official policies enabling chiefs and sub-chiefs to **force their subjects to cultivate coffee for export.** *Tutsi chiefs were encouraged to use their 'traditional authority' to levy labour tribute, or Ubureetwa, forcing the peasantry to work on the chiefs plantations."* (Kamola, 2007)


Production of crops in 1000 H 1925-1938
Export Hectares
0
10
20
30
40
50
Subsistance Hectares
0
20
40
60
80
1925
1931
1938
Year
Coffee (exp)
Tea (exp)
Jute (exp)
Peanut (exp)
Sesame (exp)
Maize (exp)
Maize (sub)
Banana (sub)
Rice (sub)
Manioc (sub)
Potato (sub)
Sorg. (sub)
Vegetables (sub)

Quotas and forced labour: which regions were impacted?

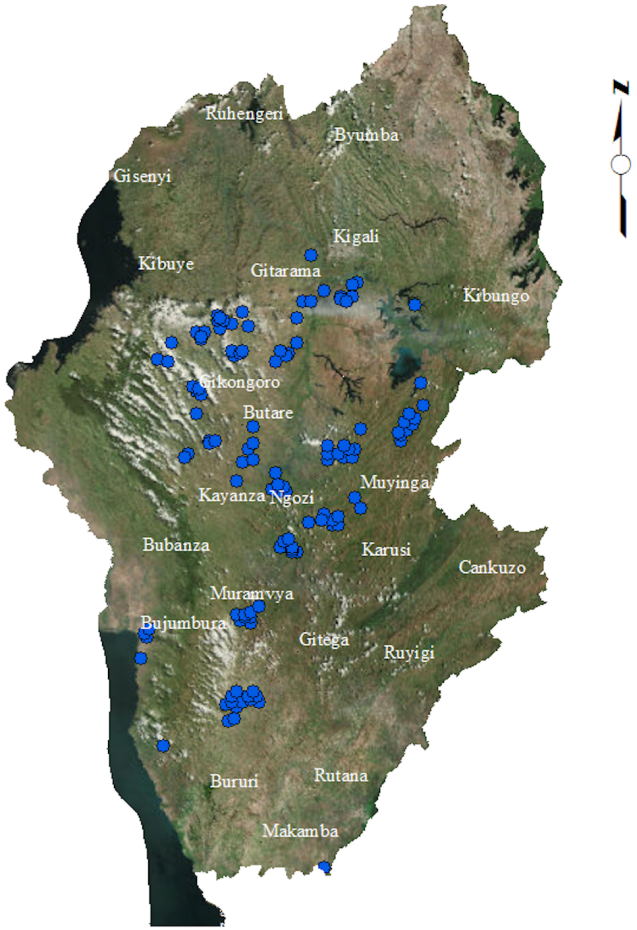
"**This was ubureetwa, one 'imposed specifically on Hutu'** *and left unreformed because officials argued that to do away with it would be to 'undermine the chiefs' authority over the population. The chief who came out of the interwar period was expected to enforce and supervise obligatory cultivation of food exports...and even to* **become majority coffee producers by using corvée labour**." (Mamdani, 2014)

Some differences between Belgian forced labour and traditional *Ubureetwa*:

1. Workers worked on chiefs plantations producing the (coffee) crop that chiefs needed to produce; previously farmers were free to pay with the production of any crop
2. Coffee farmers were targeted as the population from which to draw recruits, and faced severe migration restrictions
3. Punishments for rejecting or fleeing forced labour were brutal: *'You whip the Hutu or we will whip you.'* (Gourevitch, 1998)

Data overview

- Total of 880 farmers from 143 different villages
- Of 880: 628 are Hutu, and 242 of those played the trust game against a Tutsi, the rest played against another Hutu
- Tutsi were in 83 of 143 villages, but at least 1 Tutsi was at each session
- Sessions included about 20 people from 4-5 villages in a district



Before getting into empirical details

There are a few major challenges to studying this question in this context:

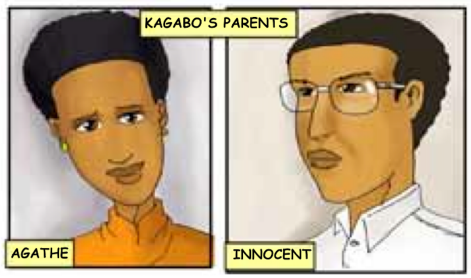
1. It is illegal, under (frighteningly vague) genocide ideology laws, to ask respondents about their ethnicity.
2. The government does not approve projects containing questions about ethnic beliefs, detailed experiences with the genocide, experiences regarding other ethnically sensitive subjects.
3. Variation is at the ancestral location level, we will get at best a noisy measure.

Outcomes: Collecting ethnicity in Rwanda

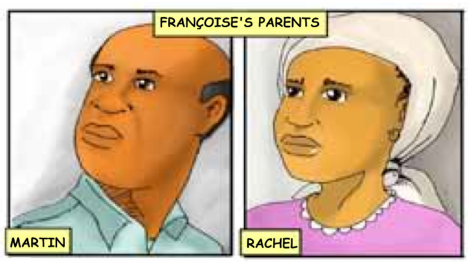
- Can't make ethnicity salient - can't even ask in Rwanda
- Proxy for ethnicity using eligibility for FARG - a genocide reparations fund for "genocide survivors"
  - Hutu victims are officially recognized by the government as *"victims of massacres that occurred during the genocide against the Tutsi"*
  - Tutsi from genocide regions are officially recognized by the government as *"Survivors of the genocide against the Tutsi"*
- We know ethnicity (without error) in Burundi and can restrict results to this sample
  - Estimates from just Burundi are similar - slightly larger - relative combined sample: any error likely orthogonal to FL

Also need respondents to be able to infer ethnicity

- I *need* the experimental data to overcome the ethnicity issue
  - Only works if resp. can tell who's Tutsi/Hutu
- Genetic studies: Tutsi are Afro-Asiatic and Hutu are Bantu
  - Even if socio-political construct (gov't teaches this): physical differences due to assortative matching
  - Belgians classified based on nose size, eye shape, skin colour, height, etc. (Welsh, 2012)



Tutsi Cartoon



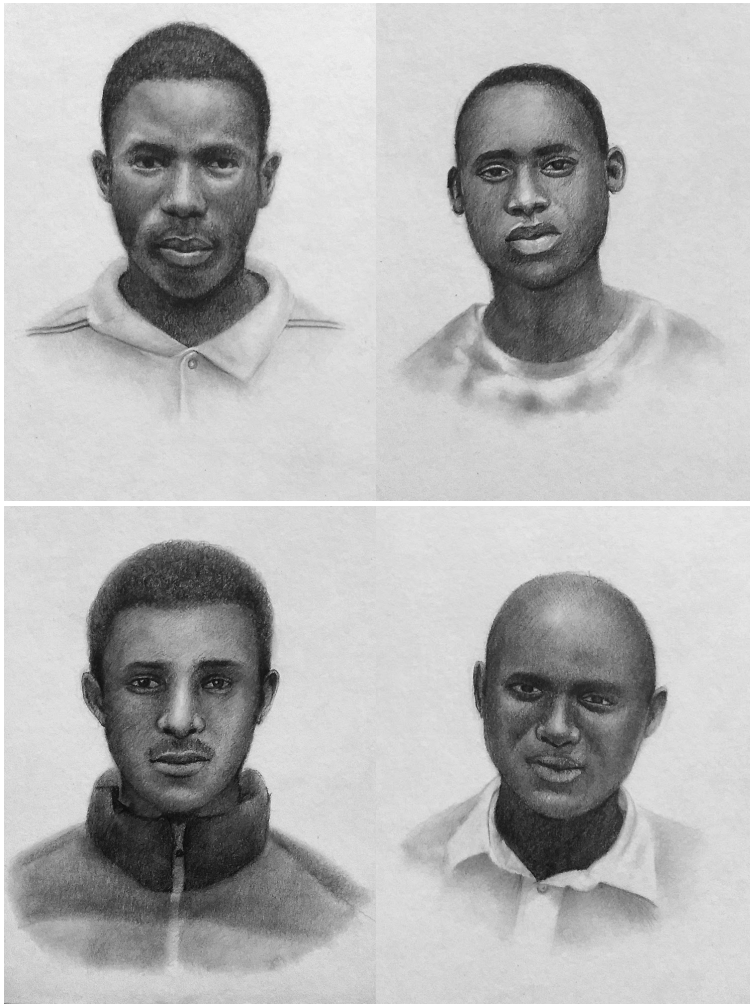
Hutu Cartoon

Interethnic attitudes: the trust game

The trust game is a standard way to elicit ethnic tensions (Fershtman and Gneezy (2001))

- How is the trust game played?
  - Player 1 shares into a pot
  - Pot is multiplied by enumerator
  - Divided between players by Player 2
- 2 strangers play face-to-face for high stakes (endowment = $1US)
- One-shot game: ethnicity 'rules-of-thumb' to get at cultural aspect of trust (Boyd & Richardson (2005), Nunn (2012))

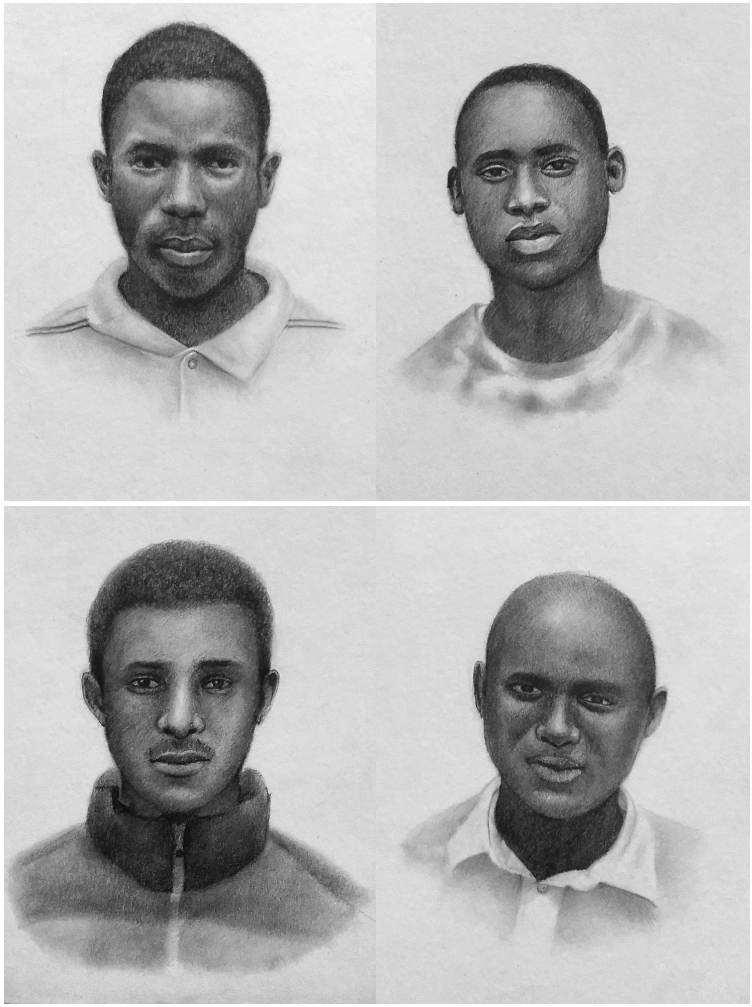
Interethnic attitudes: the SIT



Half Tutsi photos, half Hutu photos (4 of 8 to the left):

- Person in top left has a red moto
- Person in bottom left has 4 children
- Person in top right likes bananas and dislikes guavas
- Person in bottom loves to watch basketball

Interethnic attitudes: the SIT



Recall Task:

- Which person has four children?
  - If I know it was one of the Tutsi, but not which one
  - Then it would suggest that I use ethnicity to categorize.
  - Formally:
    $$SIT = \frac{\sum WithinMarkerErrors}{\sum Errors}$$

Survey data: contract outcomes

- Measurement Challenge:
  - I'd like to analyze how low inter-ethnic trust influences economic relationships
  - I'm not allowed to ask respondents about willingness to do business with Hutu / Tutsi
- Solution:
  - Analyze a type of contract where incentives are strongly to making inter-ethnic partnerships
  - Agricultural insurance contracts
- Outcomes:
  - Revealed preference: are forced labour Hutu less likely to make these agreements?
  - Outcomes: Does low trust induce default? What kind of default?

Survey data: contract data

- Survey data on inter-household crop insurance contracts
  - Historically different agricultural practices between Hutu/Tutsi
  - Incentive to enter into mixed-ethnicity contracts (for typical households)
  - In my data: still a Hutu/Tutsi crop/cattle divide
- All respondents answer questions about these (real world) contracts
  - Self-reported, so I don't focus on outcomes implying 'bad' respondent behaviour
- Main outcomes of interest: do they enter into these contracts; reasons for default (honesty/effort vs. quality of partner match)

Data Challenge 3: Family history

To know who may have been exposed to forced labour we need to know where they lived. To get this:

- Family migration histories going back 3 generations
  - Matched as early as possible
  - Have tried matching based on father of father (ethnicity is determined patrilineally) & averaging across all ancestors
- I exploit grandparent village level variation in FL - within a grandparent district - between two people who currently live in the same district.

Parameter of Interest

- Of interest is $E(T_{1i} - T_{0i}|FL_i = 1)$.
  - FL_i denotes whether individual i has ancestors that were exposed to forced labour
  - T_{1i} denotes the level of trust of individual i, for those exposed to forced labour
- The best we could hope to observe in the data is $E(T_{1i}|FL_i = 1)$ and $E(T_{0i}|FL_i = 0)$
- The difference between these means is $E(T_{1i} - T_{0i}|FL_i = 1) + E(T_{0i}|FL_i = 1) - E(T_{0i}|FL_i = 0)$.
- Of particular concern is that $E(T_{0i}|FL_i = 1) < E(T_{0i}|FL_i = 0)$
  - that Hutu who were distrustful of Tutsi anyway were more likely to be assigned to forced labour.

Measuring FL_i

To account for this endogeneity, consider the two criteria that determined selection into forced labour:

- An individual had to live in a forced labour region, and be selected for forced labour themselves
  - Let $\mu_{I^{gp}}$ capture that some grandparent locations (denoted I^{gp}) were exposed to forced labour and others were not
  - Let θ_i, captures that some individuals *within* each village were selected into forced labour by the chief, and others not.

- This implies $FL_i = \mu_{I^{gp}} \cdot \theta_i$
  - Big measurement challenge: We don't observe θ_i and therefore FL_i but can measure $\mu_{I^{gp}}$, though crudely
  - Big identification challenge: $\mu_{I^{gp}}$ is endogenous.

Measuring FL_i

Accordingly, consider the causal model of interest:

$$T_i = \alpha_0 + \alpha_1 FL_i + \alpha_2 \theta_i + \Gamma_{lgp} + \lambda_{lr} + \gamma' X_i + \varepsilon_i \qquad (1)$$

Γ_{lgp} is grandparent location fixed effects; λ_{lr} is respondent location fixed effects; $\gamma' X_i$ is a set of controls

Measuring FL_i

The best we can do is to proxy for FL_i (no hope of measuring θ_i)

- Propose exploiting that coffee farmers were overwhelmingly selected to work on the Chiefs' coffee plantations.
- Consider C_i, a proxy denoting whether the grandparents of the individual produced coffee prior to 1931.
  - Accordingly, in the survey I asked respondents about grandparent crop production
- Define:

$$\tilde{FL}_i = \mu_{Jgp} \cdot C_i \tag{2}$$

- This is observable, but we still don't want to think of μ_{Jgp} as exogenous.
  - Let me hold-off on the measurement of μ_{Jgp} for a few slides, and discuss exogenous variation in it first.

Data: GIS and archival price data

Land characteristics may be related to FL_i through μ_{Igp} if forced labour was used to meet coffee quotas

1. **Potential Quantity**
   - GIS data from FAO: potential produceable tonnes per hectare for all crops
   - Estimates available for fixed inputs: cost-controlled and matched to colonial conditions
2. **Colonial Prices**
   - Archival price data for all crops from Belgian colonial records

Marchandises	Importations — Invoer				Exportations Uitvoer	
	Totales — Totalen		de Belgique uit België			
	Tonnes Tonnen	1.000 fr.	Tonnes Tonnen	1.000 fr.	Tonnes Tonnen	1.000 fr.
I. — Animaux vivants	32	128	.....	3	4	253
II. — Objets d'alimentation et boissons.						
Beurre	377	6,724	113	2,174	13	264
Margarine et beurres artificiels	30	281	5	46	.....	2
Saindoux et graisse de bœuf	155	13,530	148	1,289	.....	4
Biscuits	127	1,512	124	1,184	3	11
Cacao en fèves	—	—	—	—	1,110	6,768
Cacao préparé	109	2,508	68	1,242	.....	8
Café non torréfié	1	10	.....	5	16,038	68,038
Café torréfié	15	264	10	202	5	36
Riz	591	1,195	73	202	1,074	1,461
Froment	2,807	7,475	722	2,280	106	281
Maïs	578	853	.....	1	11,353	5,168
Autres céréales	242	209	35	68	48	24
Autres produits de la meunerie	50	367	7	40	.....	1
Epiceries	31	535	15	253	.....	.....
Fromages	169	2,801	48	840	4	91
Fruits frais	371	2,479	41	380	1,208	853
Fruits conservés	305	2,678	57	511	3	22
Fruits secs	55	603	23	262	—	—
Huiles alimentaires	254	2,591	145	1,404	1	7
Lait	827	5,181	387	1,770	13	56
Légumes frais	113	592	80	331	29	253
Légumes secs	928	1,339	654	744	266	265
Pommes de terre	925	1,417	770	1,143	164	185
Légumes conservés	500	3,083	297	1,575	6	81

Exogenous variation in FL_i

- Match FAO data to local price information; compute 'historical local profits' for each crop, s:

$$\pi_s = q^{FAO}_{lgp,s} p_s \tag{3}$$

- Consider the profitability of coffee relative to the next most profitable crop:

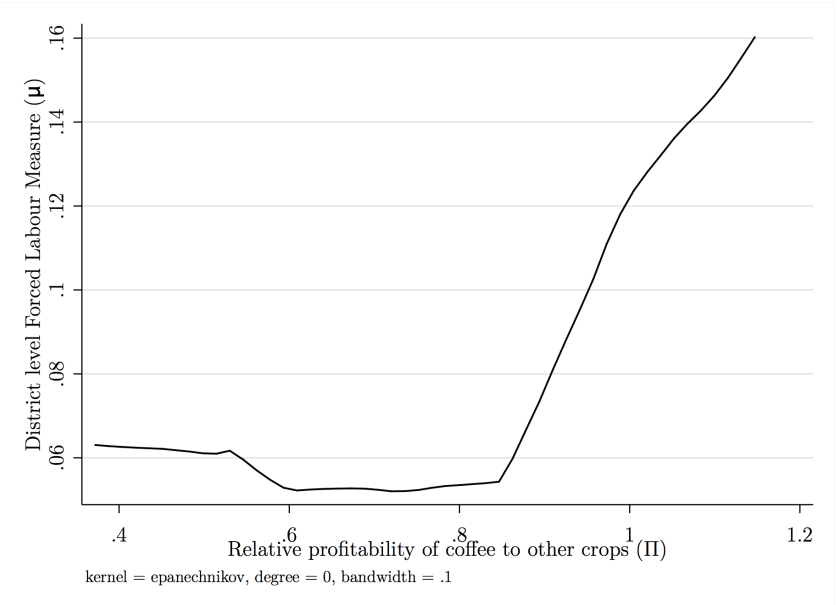
$$\Pi_{lgp} = \frac{max\{\pi_{lgp,s} | s \neq c\}}{\pi_{lgp,c}} \tag{4}$$

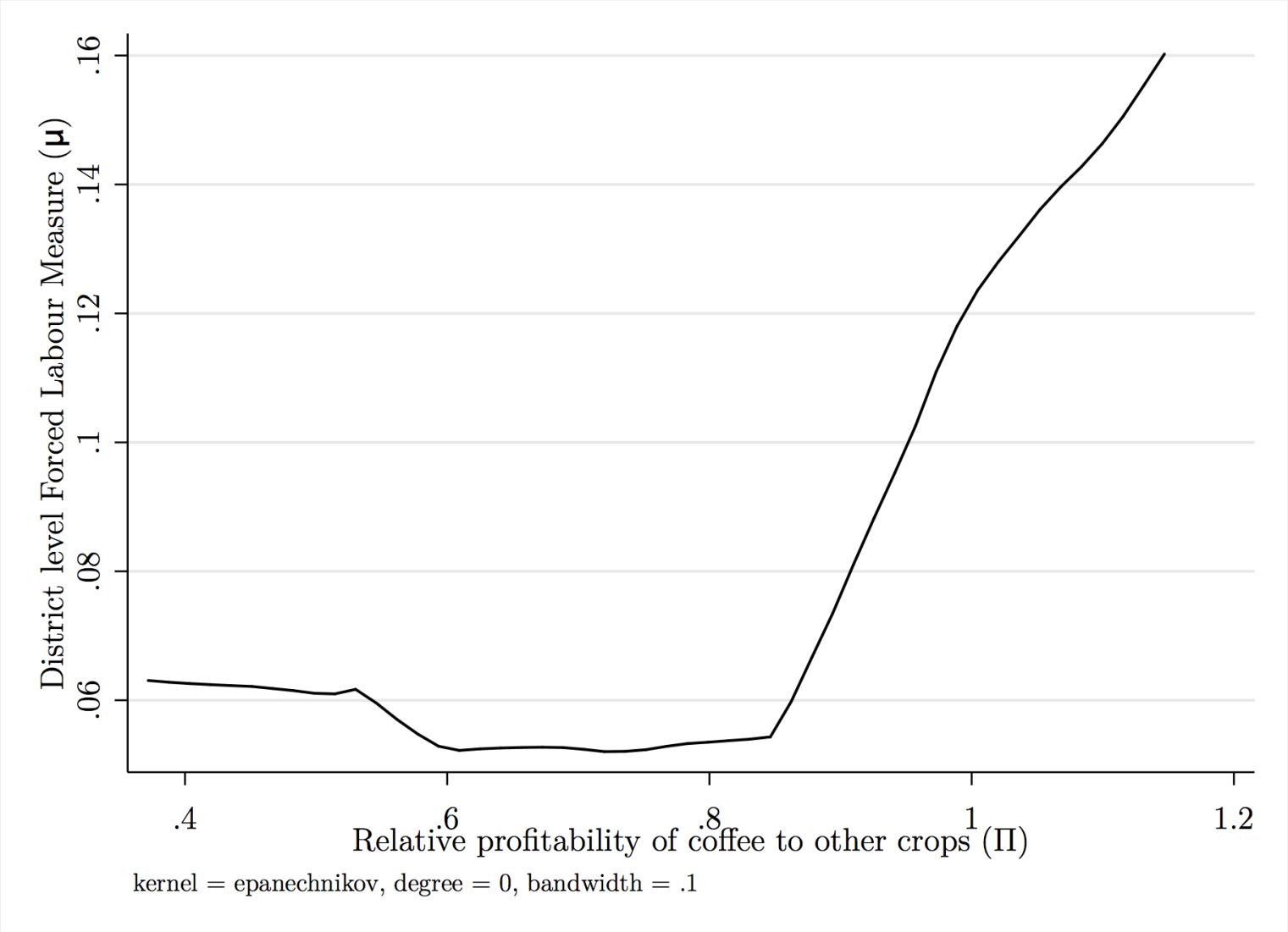
- c denotes coffee and s can be any crop

I said I could measure μ_{Jgp}. So is Π_{Jgp} correlated with μ_{Jgp} ?

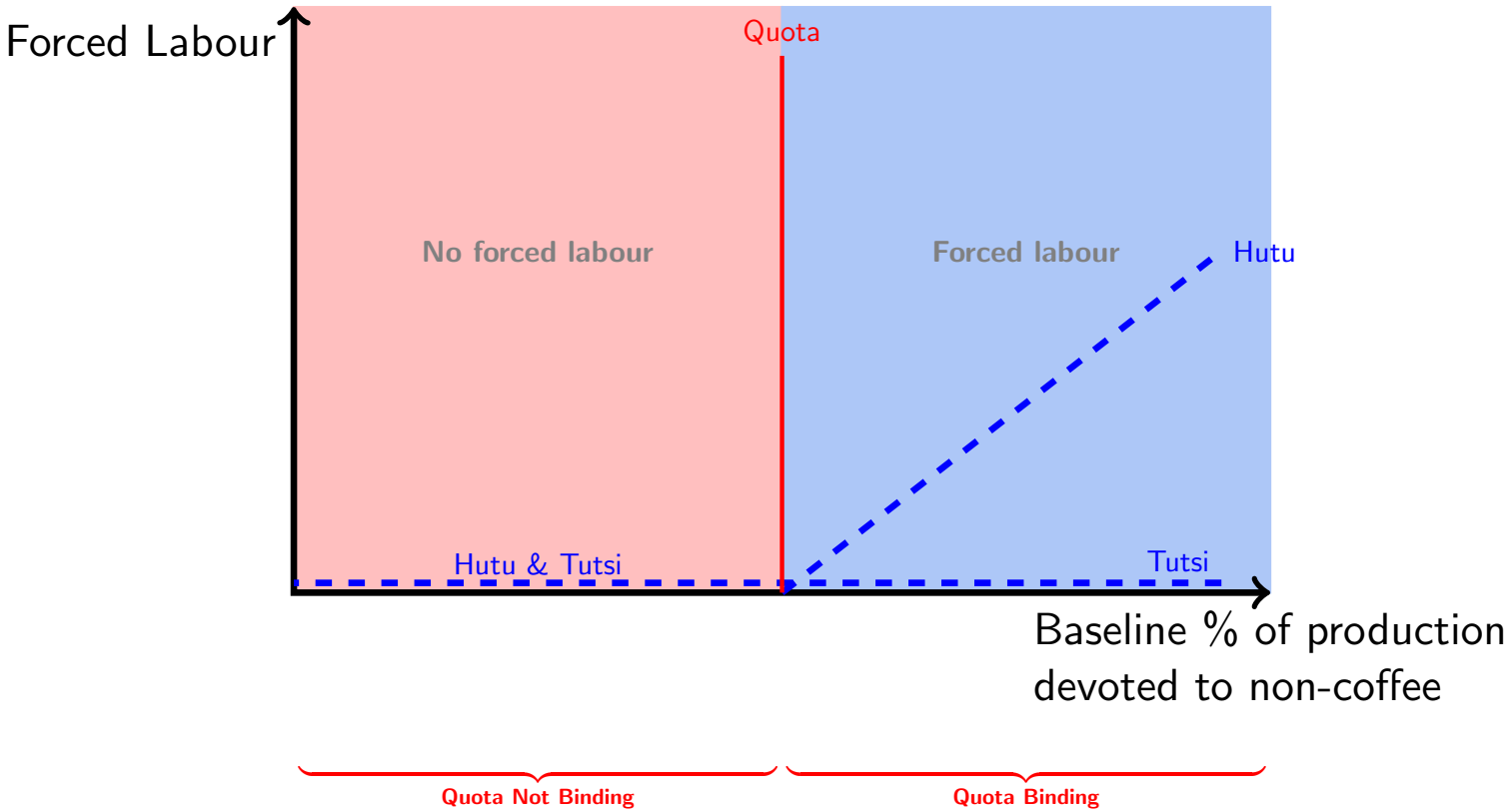
Actual forced labour data wasn't kept by Belgium, which represents an obvious challenge

- Text Analysis: reports of forced labour in Google Books (incl. digitized colonial reports)
- Code runs in two steps:
  1. any mention of a colonial era district in my data
  2. mention of that district with forced labour
- Use % of mentions associated with forced labour to account for very active administrators

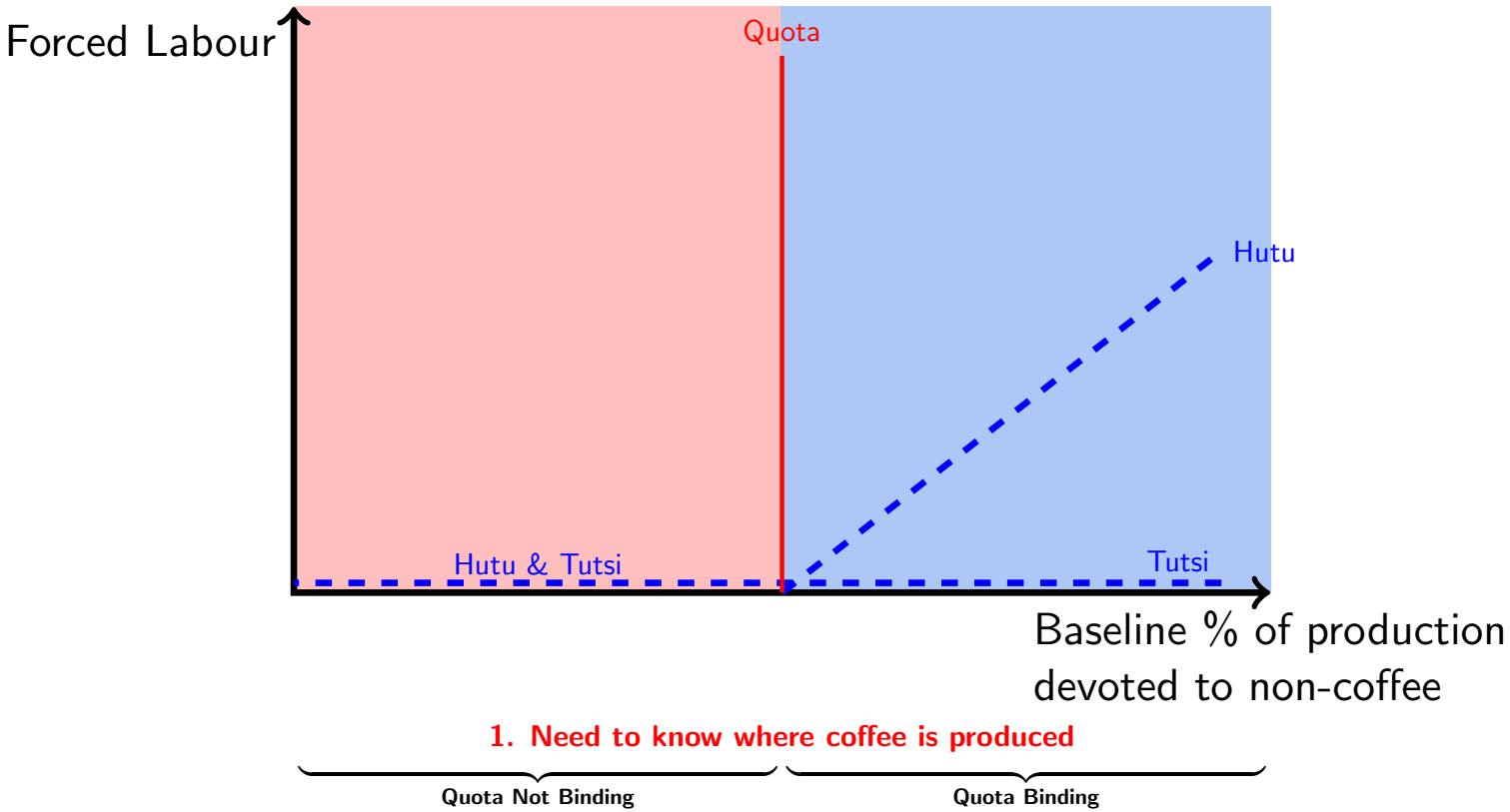



District level Forced Labour Measure (μ)
.06
.08
.1
.12
.14
.16
.4
.6
.8
1
1.2
Relative profitability of coffee to other crops (Π)
kernel = epanechnikov, degree = 0, bandwidth = .1

Summary of identification / data



Summary of identification / data



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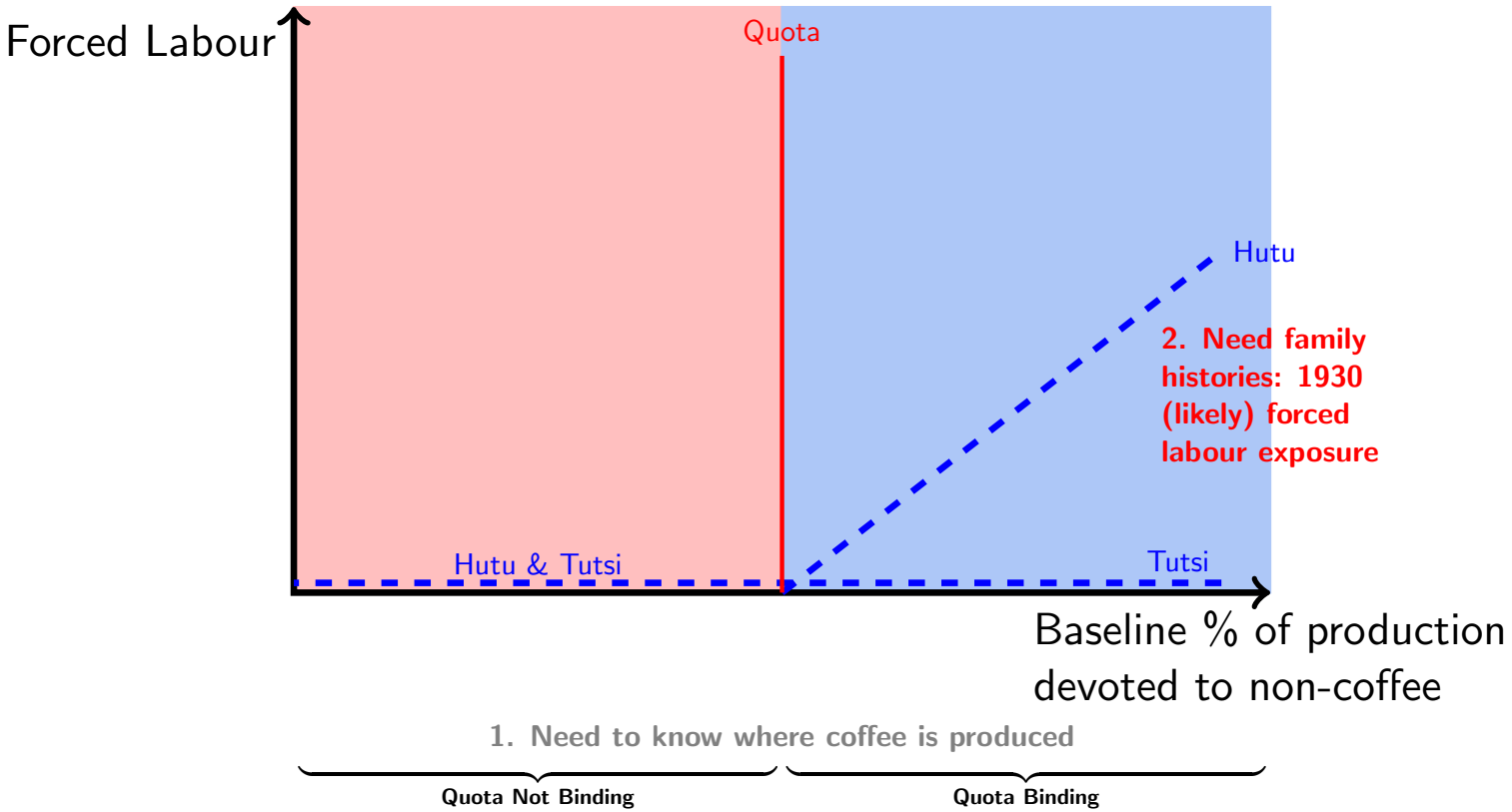

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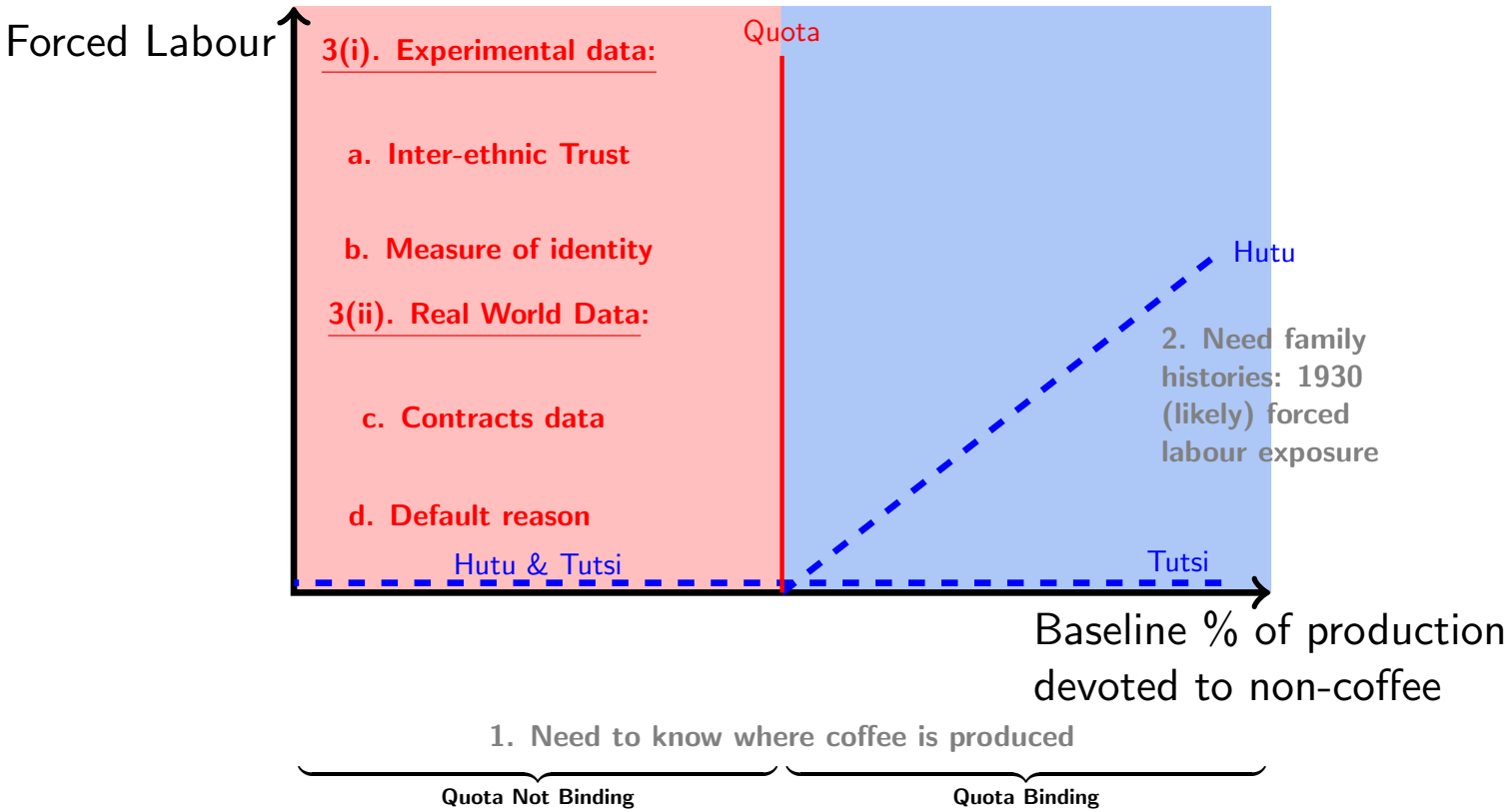
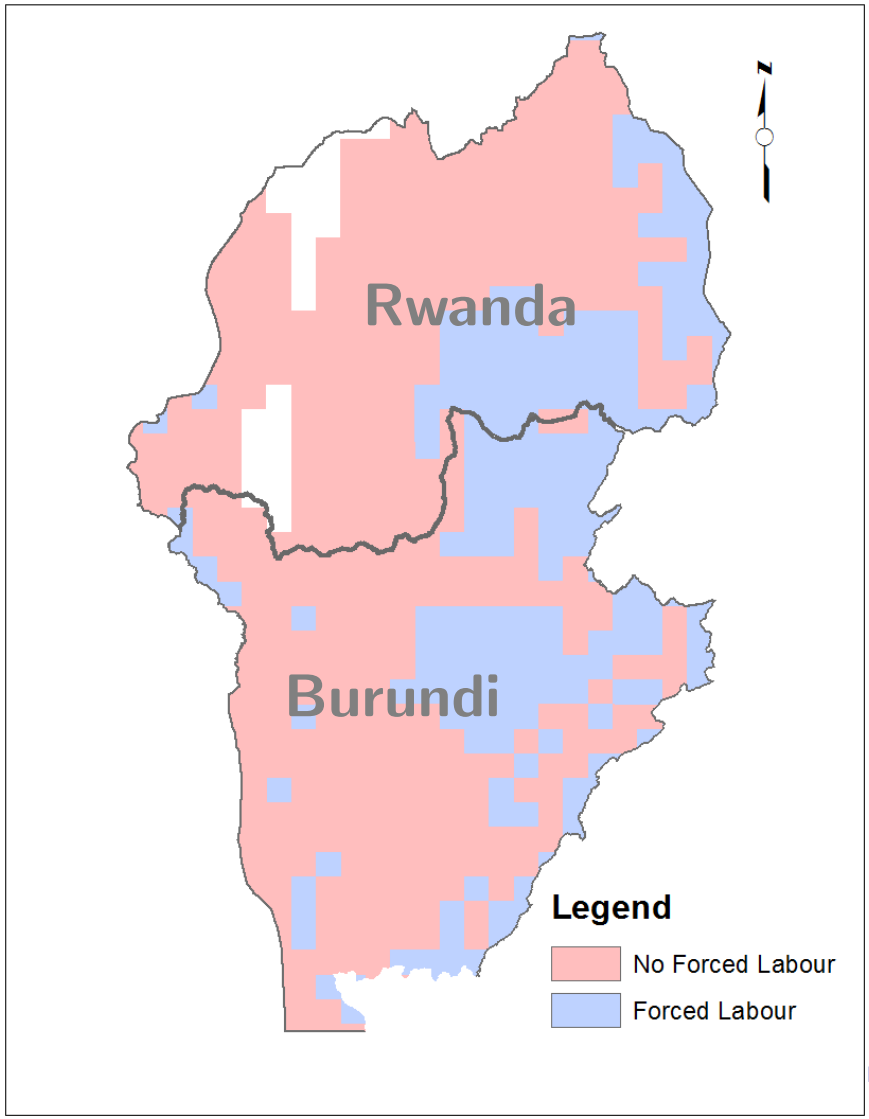
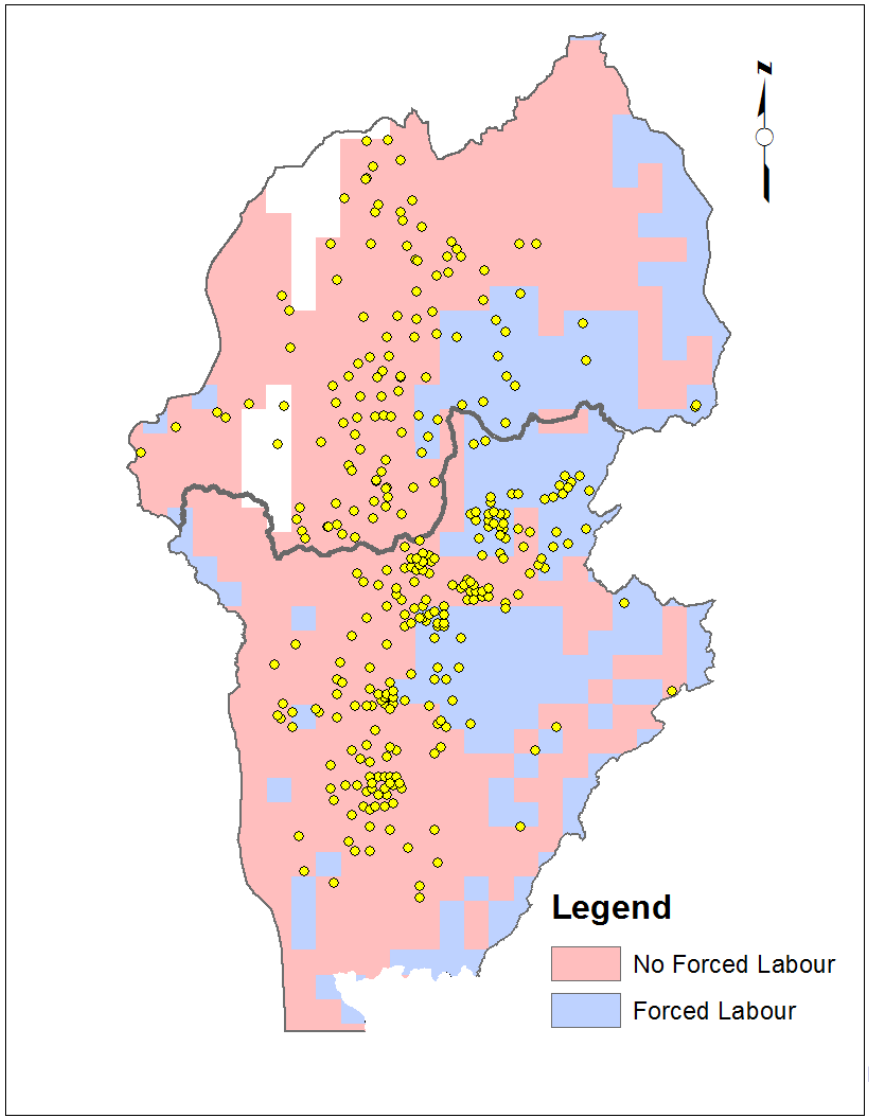


Map of calculated forced labour



Map of colonial era family locations



Summarizing the model of interest

Γ_{lgp} is grandparent location fixed effects; λ_{lr} is respondent location fixed effects; $\gamma' X_i$ is a set of controls; $\zeta_i = \Pi_{lgp} \cdot C_i$:

$$T_i = \beta_0 + \beta_1 \zeta_i + \beta_2 C_i + \Gamma_{lgp} + \lambda_{lr} + \gamma' X_i + \epsilon_i \tag{5}$$

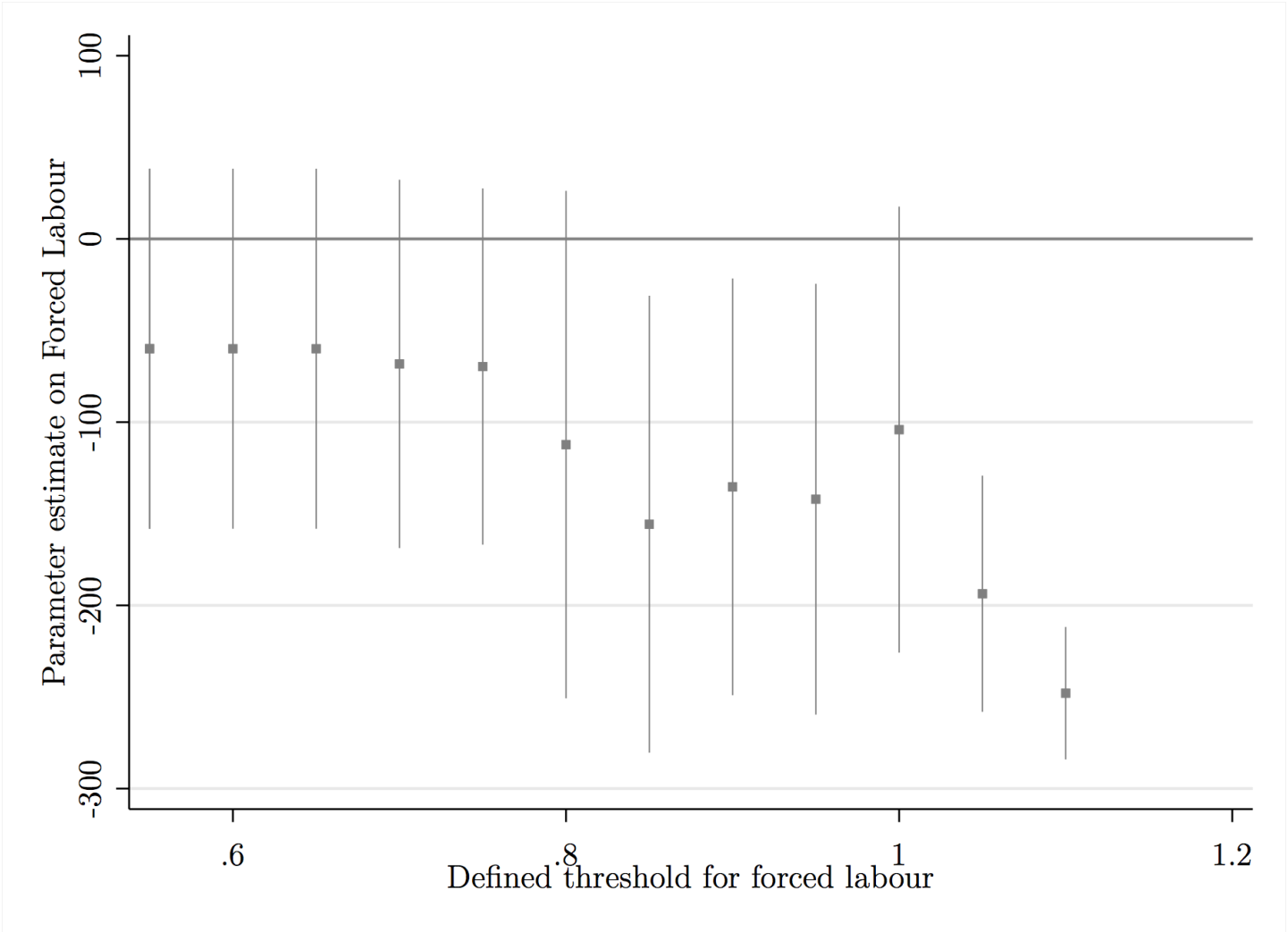
β_1 identifies a lower bound of the causal effect of differences in FL_i on differences in T_i under the following assumptions:

1. $cov(\Pi_{lgp}, \epsilon_i) = 0$ *and* $cov(C_i, \epsilon_i) = 0$ *(not testable)*
2. $cov(\Pi_{lgp}, \varepsilon_i) = 0$ *and* $cov(C_i, \varepsilon_i) = 0$ *(suggestive evidence)*
3. $0 < \frac{cov(\theta_i, C_i | l^{gp})}{var(C_i | l^{gp})} \leq 1$ *(not testable since* θ_i *is not observable)*
   and $\frac{cov(\mu_{lgp}, \Pi_{lgp})}{var(\Pi_{lgp})} > 0$ *(suggestive evidence available)*
4. $\frac{cov(\mu_{lgp}, \Pi_{lgp})}{var(\Pi_{lgp})} \leq 0 \forall l^{gp}$ *and* $\frac{cov(\theta_i, C_i | l^{gp})}{var(C_i | l^{gp})} \geq 0 \forall i$ *(not testable)*

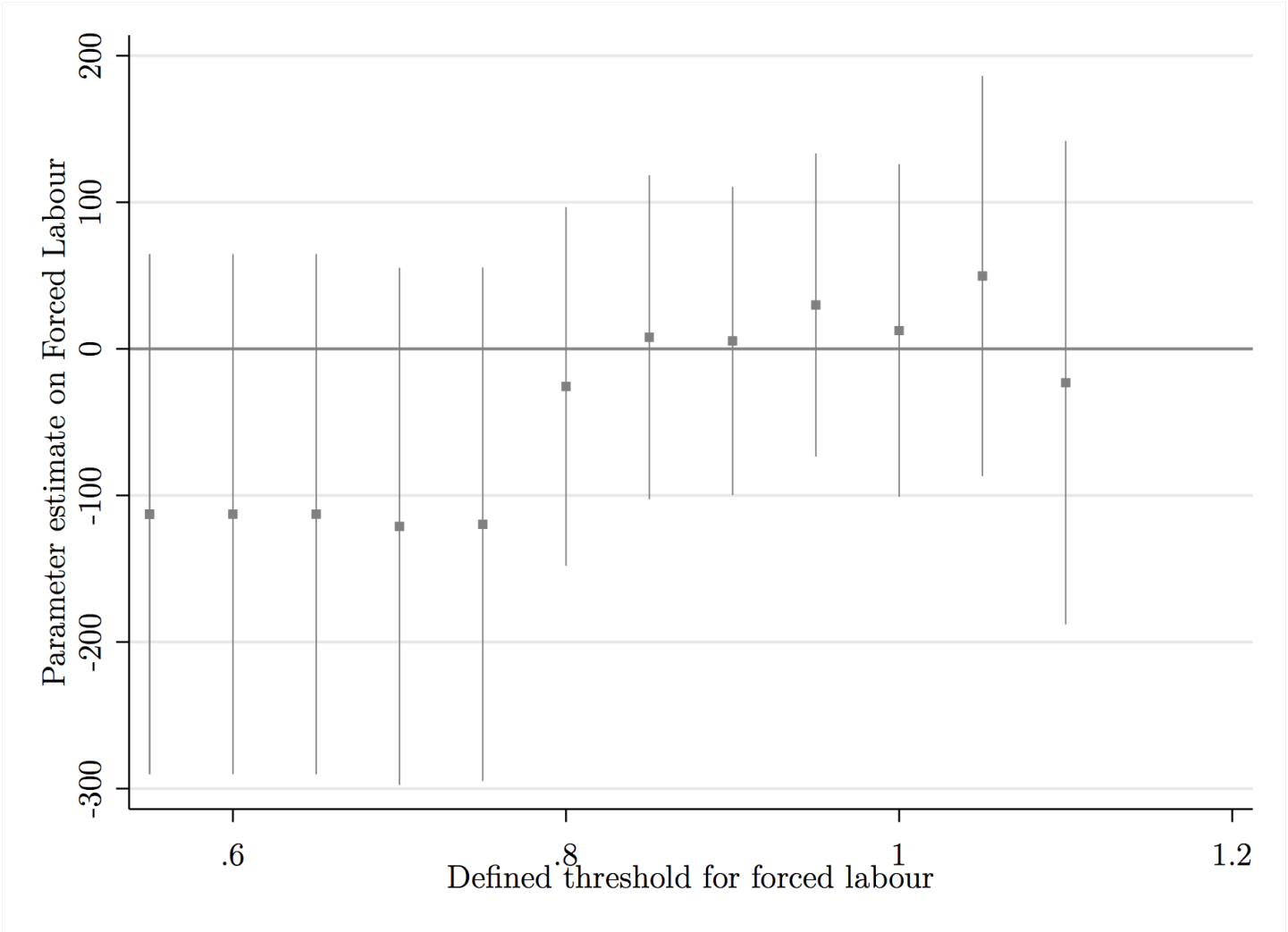
Summary statistics

	Panel A: Outcomes - Historical Forced Labour					
	Hutu			Tutsi		
Variable	Mean	Std. Dev.	N	Mean	Std. Dev.	N
Trust Game Offer	269.4	97.6	85	275.0	126.3	48
Default Rate	20%	0.15	75	11%	0.15	43
Partner Preference - Tutsi	0.31	0.28	77	0.17	0.32	48
Total Income (USD)	283.25	561.35	72	260.52	524.91	38
Fraction of Income from Insurance	0.047	0.19	67	0.049	0.175	34
	Panel B: Outcomes - No Historical Forced Labour					
Trust Game Offer	287.5	115.5	336	288.27	119.72	162
Default Rate	17%	0.15	323	9%	0.13	154
Partner Preference - Tutsi	0.47	0.25	337	0.21	0.27	164
Total Income (USD)	272.36	528.91	321	235.27	497.97	152
Fraction of Income from Insurance	0.023	0.18	296	0.01	0.04	127
	Panel C: Controls					
Gender: Female	32%	0.47	422	52%	0.50	212
Country: Burundi	0.60	0.49	422	0.64	0.47	212
Age	46.2	109.7	422	41.3	13.0	212
Education Years	5.7	3.4	421	6.1	3.9	212
Cognitive: Addition	0.79	0.33	422	0.80	0.31	212
Cognitive: Raven	0.52	0.27	422	0.474	0.289	212
Risk Preference	0.50	0.50	422	0.55	0.50	212

Differential Hutu trust of Tutsi with diff. forced labour definitions



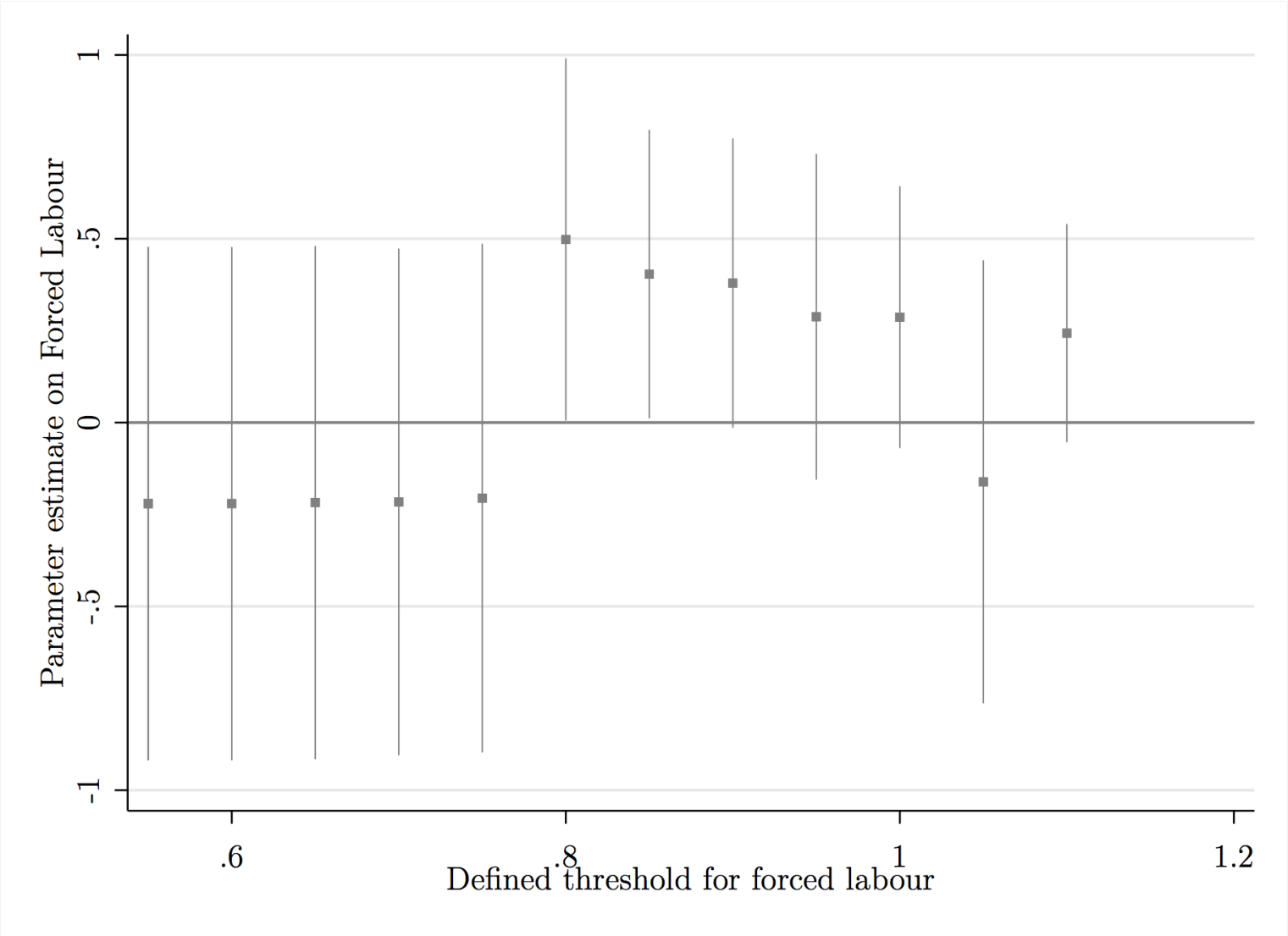
Differential Tutsi trust of Hutu with diff. forced labour definitions



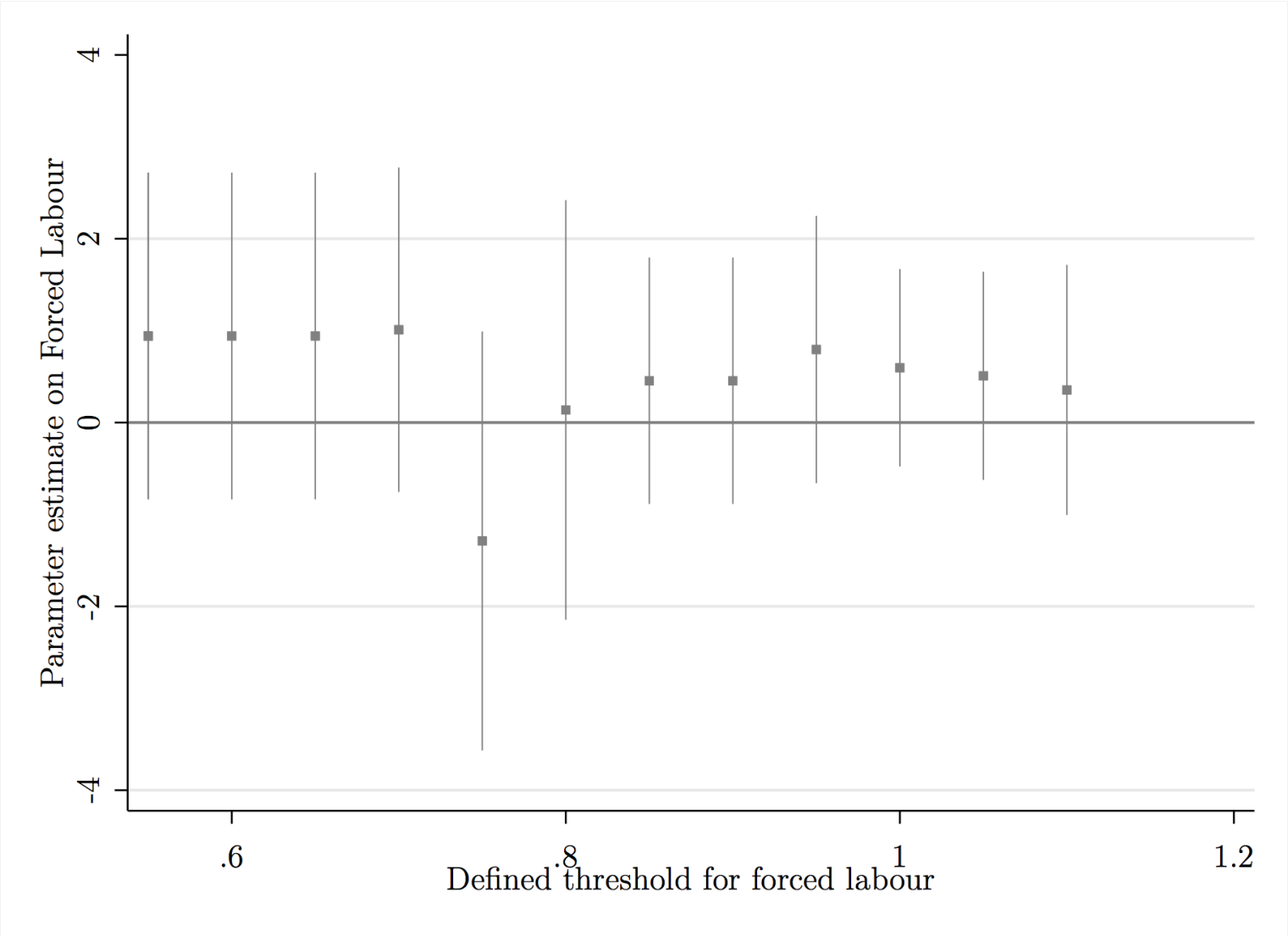
Some additional robustness tests for inter-ethnic trust

	Hutu to Tutsi (1)	Hutu to Hutu (2)	return offers (3)
ζ_i	-155.7	-38.21	7.93
	(63.63)**	(30.54)	(75.83)
Sector FE	Y	Y	Y
GP District FE	Y	Y	Y
Enumerator FE	Y	Y	Y
Gender	Y	Y	Y
Age	Y	Y	Y
Raven Score	Y	Y	Y
Risk Preference	Y	Y	Y
Clusters: Historical Districts	75	55	75
R^2	0.72	0.49	0.91
N	242	336	242

Hutu ethnic salience with diff. forced labour definitions



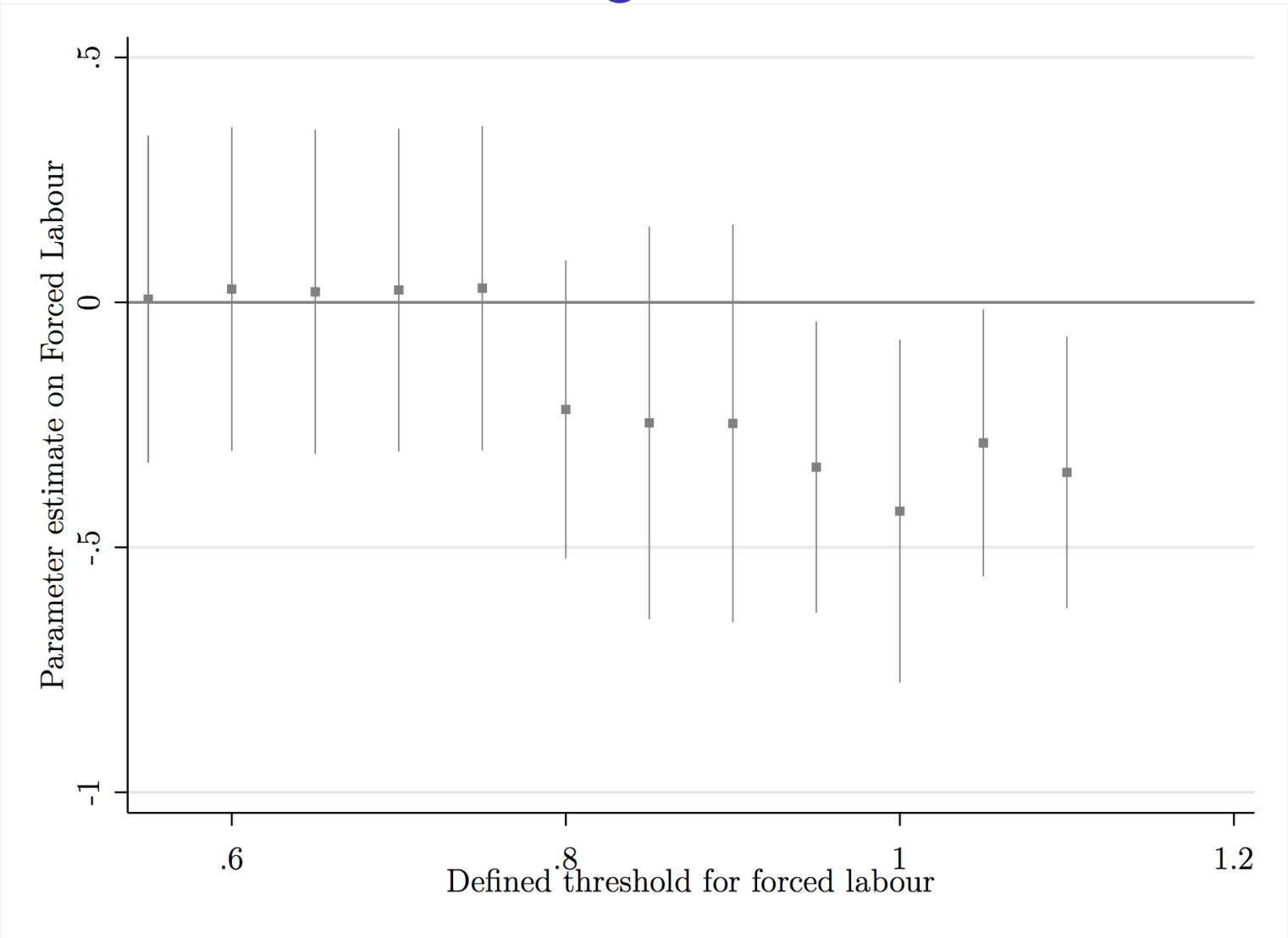
Tutsi ethnic salience with diff. forced labour definitions



Implications for value of insurance contracts?

- Could go either way:
  1. Increased reliance on ethnic community ↑ information flow, monitoring, ↓ enforcement inefficiencies, ↑ co-ordination (Greif, 1993; Ostrom, 1990; Munshi, 2003)
     - better contract outcomes
  2. Restricting partnerships to ethnic community ↓ search/match efficiency → ↓ partnership suitability
     - worse contract outcomes
- Assess value of inter-ethnic contracts using revealed preference approach
  - **How often do people agree to a particular type of contract that is typically inter-ethnic in nature?**

Hutu with inter-household ag. insurance contracts



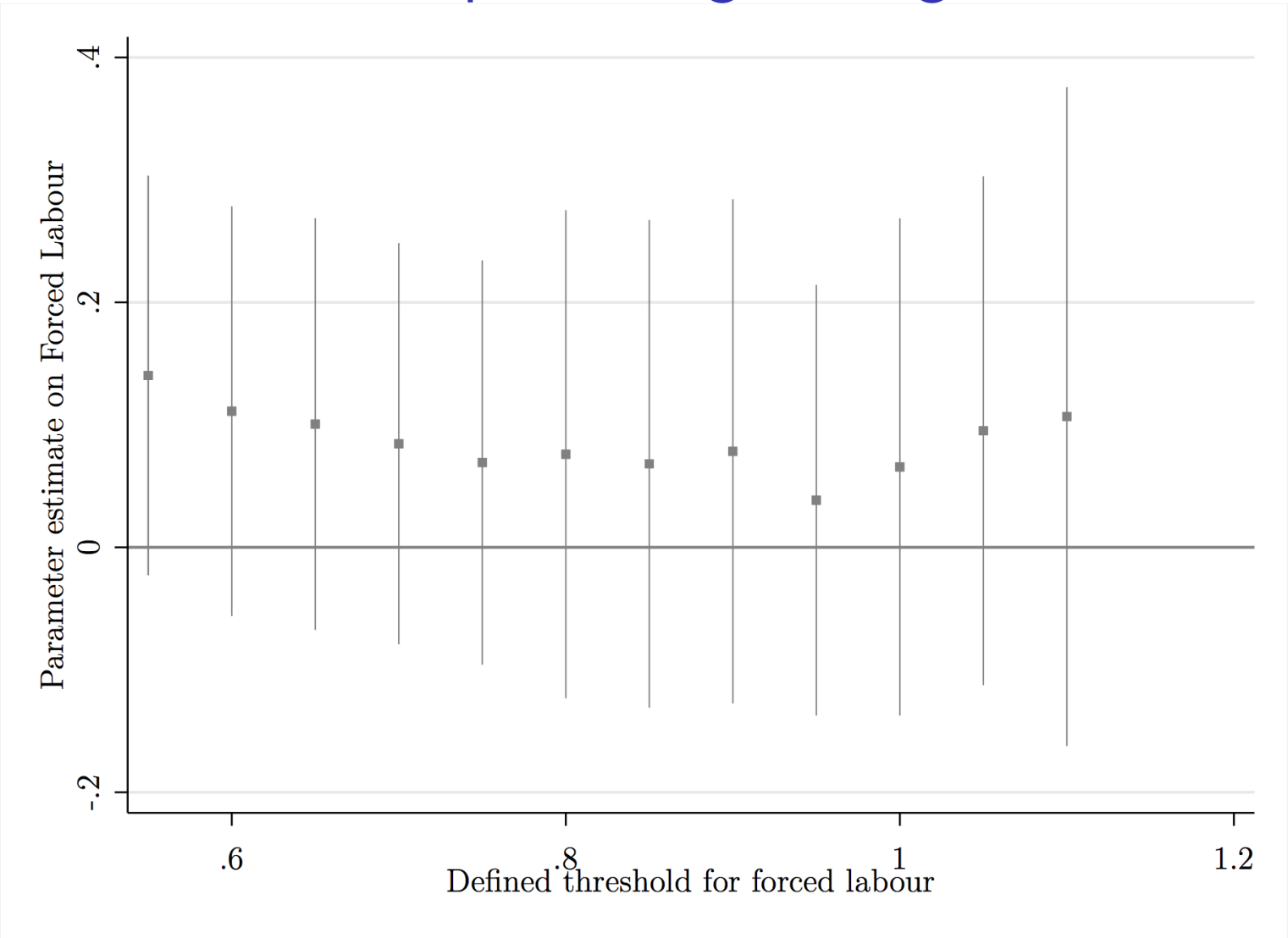
Mechanism 1: low agreement value driven directly by inter-ethnic distrust?

Mechanism 1: If the continuation value of the relationship is low due to low inter-ethnic trust, we might expect strategic default in these relationships (e.g. Blouin and Macchiavello, 2019)

Tests:

- Differences in perceived **strategic default**?
- Chose some variation for default reason of: "Found a better partner match with someone else."

Mechanism 1: Hutu experiencing strategic default



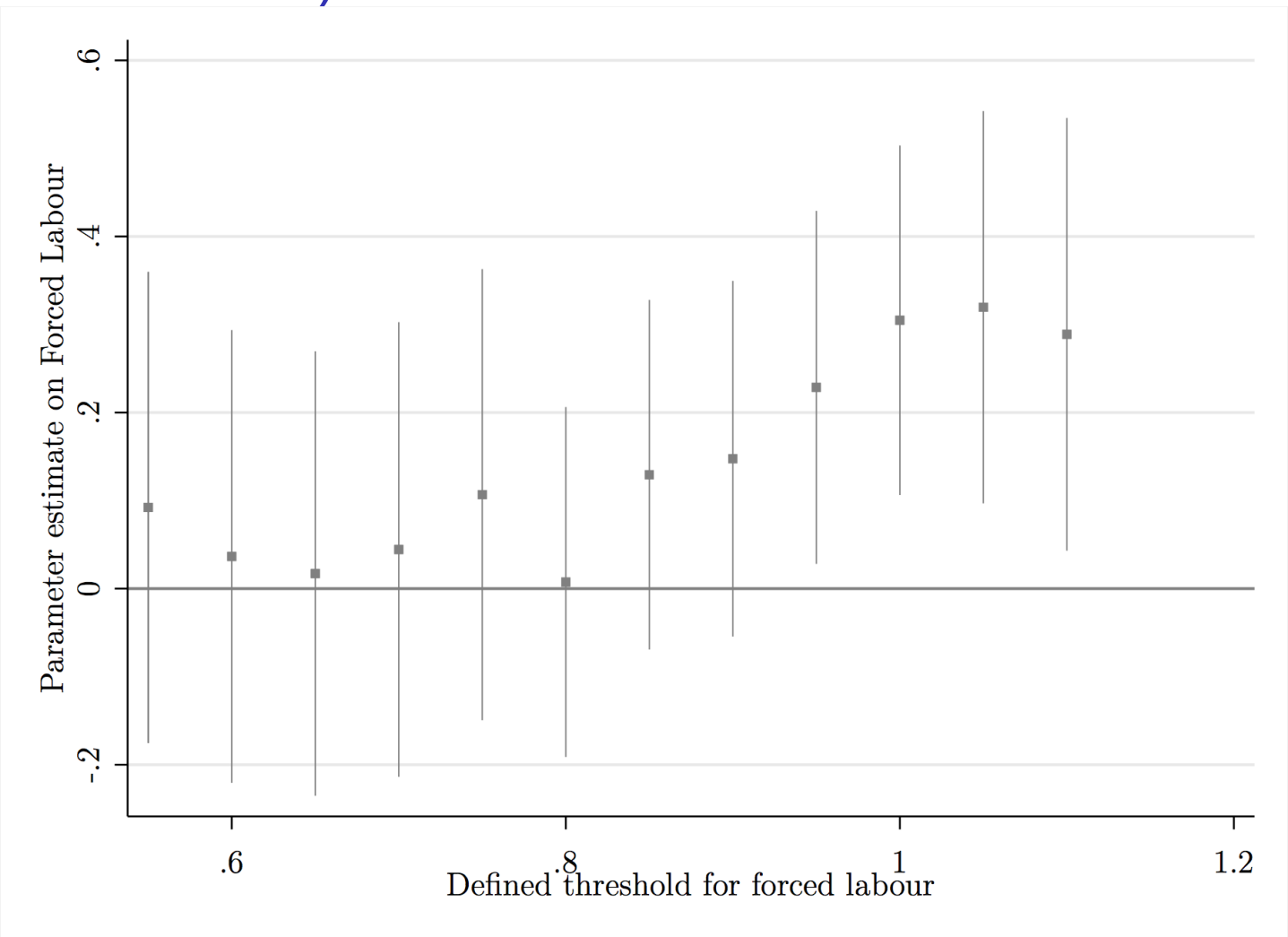
Mechanism 2: low value driven by Hutu-Hutu partnerships?

Another possibility: Insurance contracts are less valuable because Hutu avoid Tutsi contracts, and insure with Hutu partners that have more correlated incomes and are therefore **unable** to insure.

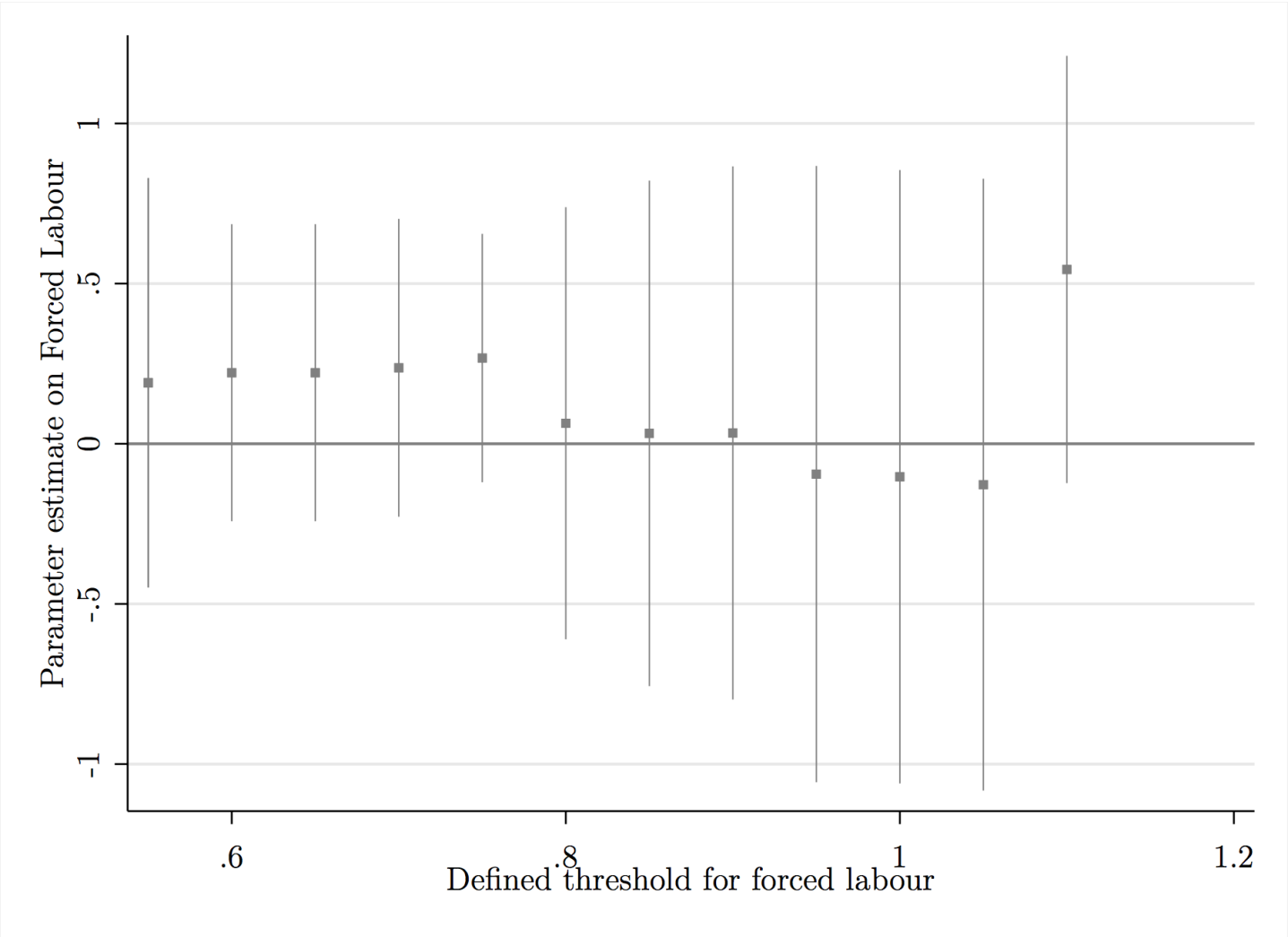
Question:

- Default reason: "Did not have the financial ability to follow through on the agreement."
- Note: inability due to illness is a separate category (and nothing shows up using that)

Mechanism 2: Hutu defaults due to financial ability (correlated shocks)



Tutsi defaults due to financial ability (correlated shocks)



Concluding remarks

1. It does seem that divisive colonial experience worsened Hutu-Tutsi attitudes in Rwanda / Burundi, as historians suggest

2. We also find evidence to corroborate that this occurred alongside an ethnic salience mechanism, as historians suggest

3. The changes to ethnic identity and rivalry have real world economic implications.